AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (previously presented) A retracting mechanism for a lens barrel, the mechanism comprising:

a non-rotatable member having an engagement surface;

a frame movable along an axis towards and away from said non-rotatable member without rotation and having a holder for holding an imaging element, the holder pivotally mounted to said frame for movement between an aligned position where the imaging element is aligned with the axis and a displaced position where the imaging element is displaced relative to the aligned position; and

a spring assembly configured to resiliently hold the holder at said aligned position and having an engagement surface configured to contact the engagement surface of the non-rotatable member during movement of the frame towards the non-rotatable member and move the holder from the aligned position to the displaced position.

2. (Original) The retracting mechanism according to claim 1, wherein the holder is movable in a plane substantially orthogonal to the axis between said aligned position and said displaced position.

3. (Original) The retracting mechanism according to claim 1, wherein the frame comprises a ring.

4. (Original) The retracting mechanism according to claim 3, wherein the movement of said holder between said aligned position and said displaced position takes place radially inwards of said ring.

5. (Original) The retracting mechanism according to claim 1, wherein the holder is resiliently held at said displaced position by the spring assembly, following movement from the aligned position to the displaced position.

6. (Original) The retracting mechanism according to claim 1, wherein the holder is pivoted about a pivot extending substantially parallel to said axis and is positioned inside said frame.

7. (Original) The retracting mechanism according to claim 6, wherein said spring assembly comprises a torsion spring supported on said pivot and configured to be pivotable together with said holder about said pivot, wherein at least one end of said torsion spring comprises said engagement surface.

8. (Original) The retracting mechanism according to claim 7, wherein said at least one end of said torsion spring comprises a movable spring end extending in a radial direction of said pivot, and is configured to be resiliently deformable in a direction of rotation of said holder about said pivot; and

wherein said engagement surface of said non-rotatable member comprises a cam configured to press said movable spring end to rotate said holder about said pivot via said torsion spring to the displaced position.

9. (Original) The retracting mechanism according to claim 8, wherein said movable spring end is resiliently deformed only when the cam applies a force sufficient to overcome the resilient holding of the holder at the aligned position.

10. (Original) The retracting mechanism according to claim 7, wherein said spring assembly resiliently holding the holder at said aligned position further comprises a biasing spring; and wherein the resilience of said torsion spring is greater than that of said biasing spring.

11. (Previously Presented) The retracting mechanism according to claim 7, wherein said holder comprises:

a cylindrical lens holder portion configured to hold said imaging element;

a swing arm portion projecting from said cylindrical lens holder portion in a radial direction of said cylindrical lens holder portion;

a pivoted cylindrical portion located on an end of said swing arm portion and which is rotatably positioned on said pivot; and

a projection projecting in a radial direction of said pivoted cylindrical portion;

wherein said movable spring end of said torsion spring is engaged with said projection of the holder and is movable in said direction of rotation of said holder about said pivot with respect to said projection.

12. (Currently Amended) The retracting mechanism according to claim 11, wherein said torsion spring comprises another spring end which is fixed to said ~~swingable holder~~

swing arm portion.

13. (Original) The retracting mechanism according to claim 1, wherein the engagement surface of said non-rotatable member comprises a cam projection projecting towards the frame.

14. (Original) The retracting mechanism according to claim 1, further comprising a movement limit stop configured to set a limit for a movement of said holder by the spring assembly.

15. (Original) The retracting mechanism according to claim 14, wherein said movement limit stop comprises a shaft supported by said frame that extends substantially parallel to said axis.

16. (Original) The retracting mechanism according to claim 1, wherein said non-rotatable member comprises a stationary member which is not movable in the direction of the axis of the frame.

17. (Original) The retracting mechanism according to claim 1, wherein the lens barrel is incorporated in a camera.

18. (Original) An optical element retracting mechanism for a retractable lens including an optical system having a plurality of optical elements, the optical element retracting mechanism comprising:

a linearly movable ring configured to be guided along an optical axis of said optical system without rotating, said ring further configured to retract along said optical axis toward

a plane, when said retractable lens moves from an operational state to a fully-retracted state;

a swingable holder configured to support a retractable optical element as one of said plurality of optical elements, said swingable holder is positioned inside and supported by said linearly movable ring such that said swingable holder is configured to be pivoted on a pivot extending parallel to said optical axis and to be swingable about said pivot;

a holding device configured to hold said swingable holder such that the retractable optical element remains positioned along the optical axis when said retractable lens is in the operational state;

a torsion spring supported on said pivot and configured to be rotatable together with said swingable holder about said pivot, wherein at least one end of said torsion spring comprises a movable spring end which extends in a radial direction of said pivot and is resiliently deformable in a direction of rotation of said swingable holder about said pivot; and

a cam provided on a stationary member positioned behind said linearly movable ring, said cam positioned behind said movable spring end when said retractable lens is in the operational state;

wherein said cam is configured to press said movable spring end to rotate said swingable holder about said pivot via said torsion spring such that said retractable optical element retracts to a radially retracted position outside of the optical axis when said linearly

movable ring, together with said swingable holder, retracts toward said plane.

19. (Original) The optical element retracting mechanism according to claim 18, wherein, while said movable spring end is pressed by said cam, said movable spring end is not resiliently deformed by a holding force which is exerted on said swingable holder by said holding device, said movable spring end being resiliently deformed only when a resistance force greater than said holding force is exerted on said movable spring end.

20. (Original) The optical element retracting mechanism according to claim 19, wherein said holding device comprises:

a biasing spring configured to bias said swingable holder to move in a direction away from said radially retracted position; and

a movement limit stop configured to set a limit of movement of said swingable holder by the biasing force of said biasing spring;

wherein the resiliency of said torsion spring is greater than that of said biasing spring.

21. (Original) The optical element retracting mechanism according to claim 18, wherein said swingable holder comprises:

a cylindrical lens holder portion configured to hold the retractable optical element;

a swing arm portion projecting from said cylindrical lens holder portion in a radial direction of said cylindrical lens holder portion;

a pivoted cylindrical portion located on an end of said swing arm portion and which

is rotatably positioned on said pivot; and

an engaging projection projecting in a radial direction of said pivoted cylindrical portion;

wherein said movable spring end of said torsion spring is engaged with said engaging projection and is movable in said direction of rotation of said swingable holder about said pivot with respect to said engaging projection.

22. (Original) The optical element retracting mechanism according to claim 21, wherein said torsion spring comprises another spring end which is fixed to said swingable holder.

23. (Original) The optical element retracting mechanism according to claim 18, wherein said cam comprises a projection projecting from said stationary member.

24. (Original) The optical element retracting mechanism according to claim 18, wherein said stationary member comprises a holder configured to hold an image pick-up device.

25. (Original) The optical element retracting mechanism according to claim 18, wherein the plurality of optical elements include at least one rear optical element positioned between the retractable optical element and said stationary member when said retractable lens is in the operational state; and

wherein the retractable optical element is positioned in an off-axis space radially outside an on-axis space in which the rear optical element is positioned, such that the

retractable optical element and the rear optical element are in substantially the same positional range in the optical axis direction, when the retractable lens is in the fully-retracted state.

26. (Original) The optical element retracting mechanism according to claim 18, wherein the retractable optical element comprises a lens group.

27. (Original) The optical element retracting mechanism according to claim 18, wherein the optical system comprises a zoom photographing optical system; and

wherein the retractable optical element comprises a lens group as a part of the zoom photographing optical system.

28. (Original) The optical element retracting mechanism according to claim 18, wherein the optical element retracting mechanism is incorporated in a digital camera.

29. (Original) The optical element retracting mechanism according to claim 18, wherein an axial center of said linearly movable ring extends substantially parallel to said optical axis.

30. (Previously Presented) A digital camera comprising a body and a lens barrel housed within the body, the lens barrel having a retracting mechanism comprising:

a non-rotatable member having an engagement surface;

a frame movable along an axis towards and away from said non-rotatable member without rotation and having a holder for holding an imaging element, the holder pivotally mounted to said frame for movement between an aligned position where the imaging

element is aligned with the axis and a displaced position where the imaging element is displaced relative to the aligned position; and

a spring assembly having an engagement surface configured to contact the engagement surface of the non-rotatable member during movement of the frame towards the non-rotatable member, the spring assembly configured to:

resiliently hold the holder at said aligned position when the respective engagement surfaces of the spring assembly and non-rotatable member do not contact each other; and

move the holder from the aligned position to the displaced position when the respective engagement surfaces of the spring assembly and non-rotatable member contact each other.

31. (Previously Presented) The camera according to claim 30, wherein the holder is movable in a plane substantially orthogonal to the axis between said aligned position and said displaced position.

32. (Previously Presented) The camera according to claim 30, wherein the frame comprises a ring.

33. (Previously Presented) The camera according to claim 32, wherein the movement of said holder between said aligned position and said displaced position takes place radially inwards of said ring.

34. (Previously Presented) The camera according to claim 30, wherein the holder is

resiliently held at said displaced position by the spring assembly, following movement from the aligned position to the displaced position.

35. (Previously Presented) The camera according to claim 30, wherein the holder is pivoted about a pivot extending substantially parallel to said axis and is positioned inside said frame.

36. (Previously Presented) The camera according to claim 35, wherein said spring assembly comprises a torsion spring supported on said pivot and configured to be pivotable together with said holder about said pivot, wherein at least one end of said torsion spring comprises said engagement surface.

37. (Previously Presented) The camera according to claim 36, wherein said at least one end of said torsion spring comprises a movable spring end extending in a radial direction of said pivot, and is configured to be resiliently deformable in a direction of rotation of said holder about said pivot; and

wherein said engagement surface of said non-rotatable member comprises a cam configured to press said movable spring end to rotate said holder about said pivot via said torsion spring to the displaced position.

38. (Previously Presented) The camera according to claim 37, wherein said movable spring end is resiliently deformed only when the cam applies a force sufficient to overcome the resilient holding of the holder at the aligned position.

39. (Previously Presented) The camera according to claim 36, wherein said spring

assembly resiliently holding the holder at said aligned position further comprises a biasing spring; and wherein the resilience of said torsion spring is greater than that of said biasing spring.

40. (Previously Presented) The camera according to claim 36, wherein said holder comprises:

a cylindrical lens holder portion configured to hold said imaging element;

a swing arm portion projecting from said cylindrical lens holder portion in a radial direction of said cylindrical lens holder portion;

a pivoted cylindrical portion located on an end of said swing arm portion and which is rotatably positioned on said pivot; and

a projection projecting in a radial direction of said pivoted cylindrical portion;

wherein said movable spring end of said torsion spring is engaged with said projection of the holder and is movable in said direction of rotation of said holder about said pivot with respect to said projection.

41. (Previously Presented) The camera according to claim 40, wherein said torsion spring comprises another spring end which is fixed to said swingable holder.

42. (Previously Presented) The camera according to claim 30, wherein the engagement surface of said non-rotatable member comprises a cam projection projecting towards the frame.

43. (Previously Presented) The camera according to claim 30, further comprising a

movement limit stop configured to set a limit for a movement of said holder by the spring assembly.

44. (Previously Presented) The camera according to claim 43, wherein said movement limit stop comprises a shaft supported by said frame that extends substantially parallel to said axis.

45. (Previously Presented) The camera according to claim 30, wherein said non-rotatable member comprises a stationary member which is not movable in the direction of the axis of the frame.

46. (Previously Presented) A digital camera comprising a body and an optical system housed within the body, the optical system comprising a plurality of optical elements and an optical element retracting mechanism, said optical element retracting mechanism comprising:

a linearly movable ring configured to be guided along an optical axis of said optical system without rotating, said ring further configured to retract along said optical axis toward a plane, when said retractable lens moves from an operational state to a retracted state;

a swingable holder configured to support a retractable optical element as one of said plurality of optical elements, said swingable holder positioned inside and supported by said linearly movable ring such that said swingable holder is configured to be pivoted about a pivot extending parallel to said optical axis;

a holding device configured to hold said swingable holder such that the retractable

optical element remains positioned along the optical axis when said retractable lens is in the operational state;

a torsion spring supported on said pivot and configured to be rotatable together with said swingable holder about said pivot, wherein at least one end of said torsion spring comprises a movable spring end which extends in a radial direction of said pivot and is resiliently deformable in a direction of rotation of said swingable holder about said pivot; and

a cam provided on a stationary member positioned behind said linearly movable ring, said cam positioned behind said movable spring end when said retractable lens is in the operational state;

wherein said cam is configured to press said movable spring end to rotate said swingable holder about said pivot via said torsion spring such that said retractable optical element retracts to a radially retracted position outside of the optical axis when said linearly movable ring, together with said swingable holder, retracts toward said plane.